

Exposure Therapy for PTSD

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Abstract / Synopsis

In this chapter, we provide an overview of a widely used evidence-based treatment for PTSD called *exposure therapy*. We define terms, briefly depict the theory underlying the approach, describe what exposure therapy is, present the evidence for its efficacy, discuss treatment considerations, describe demographic variations, and discuss relevant policy issues. We conclude with a summary and recommendations.

Definitions

PTSD, or posttraumatic stress disorder, is a mental health condition that can result from experiencing a traumatic event, such as combat or sexual assault. It is characterized by intrusive recollections of the event, avoidance of reminders of the event, negative alterations in cognitions or mood, and alterations in physiological arousal and reactivity. Symptoms must be present for at least one month and cause clinically significant distress or impairment in functioning to meet criteria for the disorder. (For more information, refer to the encyclopedia entry on "Posttraumatic Stress Disorder.")

Exposure therapy is a type of cognitive-behavioral therapy (CBT) that attempts to reduce or eliminate fear and anxiety that arise when individuals with PTSD are reminded of their traumas. Therapists' help patients process trauma memories in imagination and confront trauma-related situations in everyday life to reduce or de-condition fears. (For more information, refer to the encyclopedia entry on "Exposure therapy for anxiety disorders.")

Exposure therapy is designed principally to reduce the cognitive and behavioral avoidance strategies that dominate the experience of patients with PTSD. Avoidance of thoughts and feelings related to the traumatic event, and avoidance of situations and contexts that trigger painful memories of the trauma, not only affect wellness and quality of life but also thwart healing and recovery from trauma. *Imaginal* exposure targets cognitive avoidance of trauma-related emotions, thoughts, and memories. *In vivo* exposures target behavioral avoidance of people, places, and situations that serve as reminders of the trauma.

History and theoretical background

Modern exposure therapy dates back to clinical approaches to help soldiers recover from combat trauma as early as WWI (Monson, Friedman, & La Bash (2007); see Rivers (1918)). Often with the assistance of disinhibiting sedative-hypnotic medications, soldiers were asked to disclose horrific memories of combat to explore what were assumed to be repressed traumatic experiences or dissociative episodes triggered by traumatic stimuli. Eventually, conditioning theories were used to explain the therapeutic benefits of focused prolonged exposure to war trauma memories (Keane, Zimering, & Caddell, (1985); Kilpatrick, Veronen, & Resick (1979)). The most parsimonious and useful conditioning model that explains the merits of exposure therapy is the two-factor learning theory of Mowrer (1960).

In two-factor theory, posttraumatic symptoms are assumed to arise from a combination of classical conditioning and operant learning. The trauma acts as an unconditioned stimulus, which is paired with a variety of peri- and post-event stimuli, producing conditioned reactions to those stimuli (the first factor). The conditioned stimuli (trauma reminders) are then avoided because they cause fear, and when that happens, the behaviors used to avoid the reminders are reinforced by virtue of the reduction in fear (the second factor). The intrusive trauma memories that

characterize PTSD are insufficient to lead to extinction of fear, because the subsequent avoidance of the memory and associated emotion interferes with exposure to the complete memory. Exposure therapy is designed to prevent avoidance and foster the extinction of conditioned fear to trauma memories and associated cues via repeated and prolonged exposure to those memories and cues (e.g., Keane, Zimering, & Caddell (1985); Lyons & Keane (1989)).

Researchers in the fields of anxiety disorders and sexual assault trauma also leveraged learning and information processing theories to develop a theory of fearful responding (Foa & Kozak (1986)) and applied it to PTSD (Foa, Steketee, & Rothbaum (1989)). According to emotional processing theory (EPT; Foa & Kozak (1986); Foa & Rothbaum (1998); Foa, Huppert, & Cahill (2006)), PTSD occurs when the trauma memory structure, stored as a fear memory to facilitate escape from danger, expands to include a range of negative and dysfunctional meanings about the trauma. Prolonged Exposure therapy (PE; Foa, Hembree, & Rothbaum (2007)) purports to modify this memory structure. EPT posits that treatment must elicit sufficient emotional engagement to permit access to the fear structure, followed by new learning that modifies the fear structure, which is indexed by extinction (reduced distress in response to the trauma memory) across sessions.

In exposure-based treatment approaches, the patient is asked to repeatedly confront or revisit details of their trauma memory and associated aversive emotions and thoughts in the absence of negative consequences (e.g., actual life threat) with the goal of extinction and new learning. Exposure therapy does not eradicate a traumatic memory or conditioned reactions to the memory. Rather, the fear response to the conditioned stimuli is inhibited; new associations about safety and relief are more accessible after successful therapy, but they still compete with the fear response over the life-course (see Plendl & Wotjak (2010)). Consistent with this, some

researchers have proposed that exposure treatment should focus on fear *tolerance*, through the development and reinforcement of new non-threat associations across contexts and over time, instead of fear relief (Craske *et al.* (2008)).

Clinical approach, change-agents, and boundary conditions

At the outset of treatment, a thorough rationale is presented to enhance motivation to engage in the challenging work of exposure. Patients can expect to learn to differentiate between past trauma and present memory and gain mastery over their reactions to the trauma memory (detailed in Foa, Hembree, & Rothbaum (2007) and Cahill, Rothbaum, Resick, & Follette (2009)). Before commencing exposures, patients may also be trained in coping strategies such as relaxation and controlled breathing to make the aftermath of exposure sessions more palatable (e.g., Foa, Hembree, & Rothbaum (2007); Lyons & Keane (1989)).

Imaginal exposures entail real-time verbal or written confrontation of the trauma memory. The therapist guides the patient through revisiting a trauma memory in the therapy session by imagining a scene and repeating the narrative verbally. The patient is asked to recount the worst or most distressing event multiple times in session and listen to a recording of the session as homework (Foa, Hembree, & Rothbaum (2007)). Sessions conclude with extensive discussion of the experience to promote the integration of more benign meanings about the event. Other imaginal exposure approaches include repeated reading of a written trauma account (e.g., Cognitive Processing Therapy for PTSD, or CPT; Resick, Monson, & Chard (2010)). Another form of written exposure therapy, developed for victims of multiple traumatic events due to war or organized violence, is Narrative Exposure Therapy (NET; Robjant & Fazel (2010)), the goal of which is to integrate contextual information and sensory memories into an overall autobiographical narrative. Instead of focusing on a single event, in NET the patient

narrates all stressful life events in chronological order, under the assumption that the fear structures of multiple events overlap (Robjant & Fazel (2010)). Finally, imaginal exposure therapy may be simulator-based (e.g., Virtual Reality Exposure Therapy; VRET; see Watts *et al.* (2013), and the encyclopedia entry on “Telehealth, computer, and internet therapy.”)

Historically, exposure therapies required longer sessions due to repetition of the imaginal exposures and the need to maintain focus until distress subsides (90 to 120 minutes; Lyons & Keane (1989); Foa, Hembree, & Rothbaum (2007)). However, other treatment formats foster therapeutic exposure with less therapist involvement and briefer sessions (e.g., group format; Schnurr, Friedman, Foy, Shea, Hsieh, Lavori, *et al.* (2003); van Minnen & Foa (2006)). A recent example is written exposure therapy (Sloan, Marx, Bovin, Feinstein, & Gallagher (2012); Sloan, Lee, Litwack, Sawyer, & Marx (2013)), which involves the patient writing about their most distressing traumatic event from a distanced perspective, without reading the account to a therapist. The therapist is involved in psychoeducation and brief processing of the writing sessions, and the patient writes for 30 minutes in each of four sessions.

In vivo exposure for PTSD, which complements imaginal exposure in PE, typically involves creating a hierarchy of avoided situations and confronting those situations gradually outside of the therapy session. The therapist and patient collaborate to create a hierarchy, identifying specific, graduated situations that can be reasonably approached through *in vivo* exercises, with the patient rating the relative distress each situation elicits. For example, a person who experienced a bomb detonation in a crowded public space may learn to tolerate crowds by including on his or her *in vivo* hierarchy situations such as going to a shopping mall on a quiet weekday morning and staying in the parking lot, entering the mall (higher on the hierarchy), and entering the mall on a busy weekend (higher still). For exposures to be effective, the patient must

stay in the situation long enough for the distress to peak and naturally decline. The patient repeats the exposure until the distress triggered by the situation peaks at a lower pre-determined rating; they then move on to the next exposure on their hierarchy, systematically approaching the most distress-inducing situations.

Evidence

Exposure therapy is one of the best-studied psychotherapeutic techniques for treating PTSD, and recent meta-analyses suggest it is highly efficacious, particularly for single-incident, adult-onset traumatic events, such as sexual assault and motor vehicle accidents (Watts *et al.* (2013)). In these studies, exposure therapy had uniformly strong clinical effects compared to controls and modest effects compared to supportive counseling and other active treatments (Bradley, Green, Russ, Dutra, & Westen (2005)). Two meta-analyses of PE, specifically, found substantial effect sizes compared to wait-list or supportive counseling controls at post-treatment, and moderate effects at follow-up, though no difference compared to other active treatments (Powers, Halpern, Ferenschak, Gillihan, & Foa (2010); Watts *et al.* (2013)). The evidence from a limited number of controlled trials suggests VRET and NET typically outperform non-active-therapy controls as well (Robjant & Fazel (2010); Watts *et al.* (2013); cf. Gonçalves, Pedrozo, Coutinho, Figueira, & Ventura (2012)).

As with any treatment, there is the question of how exposure therapy performs outside of tightly controlled randomized trials. Some studies suggest real-world effectiveness of PE with civilians (see Foa *et al.* (2005); Zoellner, Feeny, Fitzgibbons, & Foa (1999)). Although PE is being disseminated formally in the VA Healthcare System (Karlin *et al.*, 2010), fewer data are available regarding the utility of PE with service members and veterans (e.g., Steenkamp & Litz (2013); cf. Rosen *et al.* (2004)). In an effort to assess effectiveness of disseminated treatments

for PTSD in the VA, Jeffreys and colleagues (2014) conducted a retrospective chart review of patients receiving PE and CPT in a Veterans Health Administration specialty clinic. Although PE outperformed CPT, differences in patient characteristics and completion rates obscure interpretation of the results.

Treatment considerations

Exposure therapies for PTSD are highly intensive, as they require the patient to confront horrifically painful traumatic experiences. Clinicians may be concerned about increased risk of treatment dropout due to exacerbation of symptoms (e.g., Tarrrier *et al.* (1999)). Although PTSD treatments that focus on processing trauma memories have higher dropout rates than present-focused treatments (Imel, Laska, Jakupak, & Simpson (2013), exposure therapy has a dropout rate comparable to other active treatments for PTSD (Hembree, Foa, Dorfan, Street, Kowalski, & Tu (2003); Imel, Laska, Jakupak, & Simpson (2013)). Additionally, one study indicated that dropout from exposure therapy was unrelated to temporary exacerbation of PTSD, depression, or anxiety symptoms, which occurred in approximately one-quarter of cases (Foa, Zoellner, Feeny, Hembree, & Alvarez-Conrad (2002)). Finally, a review of potential contraindications to exposure suggested that PE can be used safely and effectively even in the presence of comorbid depression, substance abuse, borderline personality disorder, and dissociation (van Minnen, Harmed, Zoellner, & Mills (2012)). Nevertheless, clinicians need to exercise a degree of caution and prepare patients collaboratively for the demands of exposure therapy. For example, clinicians need to provide accurate expectations about temporary symptom exacerbation and help patients to understand that feeling fear and other aversive emotions in the short term will achieve the goal of remediating fear in the long term (e.g., Foa, Hembree, & Rothbaum (2007)).

Clinicians may also be concerned about the suitability of standard exposure approaches for non-fear-based responses to trauma. For instance, an early set of case studies suggested that exposure results in exacerbation of anger and guilt feelings for some individuals (Pitman *et al.* (1991)). PE researchers have reported that emotions such as shame and guilt can be successfully treated with exposure therapy through post-exposure processing (e.g., Foa, Hembree, & Rothbaum (2007); Stapleton, Taylor, & Asmundson (2006)) and described how to modify the treatment accordingly for perceived perpetration events (Smith, Duax, & Rauch (2013)). However, others have argued that the mechanism of extinction underpinning exposure may not be viable for shame and guilt, especially shame and guilt related to the unique experiences of combat trauma (Steenkamp, Nash, Lebowitz, & Litz (2013)).

Finally, clinicians should consider modifying exposure treatment in cases of particular emotions and trauma histories. For example, anger may interfere with fear processing and thereby block the effect of exposure (e.g., Foa, Riggs, Massie, & Yarczower (1995)). For cases of extreme anger, emotional numbing, and anxiety, researchers have suggested incorporating cognitive therapy techniques (e.g., challenging maladaptive thinking) into the exposure treatment (e.g., Jaycox & Foa (1996)). Additionally, preceding exposure with training in skills for tolerating distress (e.g., grounding, positive imagery) may be indicated for individuals with histories of childhood abuse and associated difficulties managing intense emotions (Cloitre *et al.* (2010); cf., Cahill, Zoellner, Feeny, & Riggs (2004)).

Variations by gender, race, and war era

Research investigating demographic variations in response to exposure therapy for PTSD is sparse. Among six RCTs that assessed differences in response to exposure therapy by gender, none reported differences in dropout rate, and two reported greater symptom improvement for

women; however, though these studies failed to control for trauma type (e.g., combat vs. sexual assault) or analyze gender matching between therapist and participant (Blain, Galovski, & Robinson (2010)). One secondary analysis of a study including PE as a treatment condition reported no differences in treatment outcome by race but did find that African American women were more likely to drop out than Caucasian women, even when controlling for history of physical and sexual abuse, treatment expectations, age, education, and income (Lester, Resick, Young-Xu, & Artz (2010)). Finally, Yoder *et al.* (2012) found differing effects for PE across war eras in veterans receiving outpatient PTSD treatment at a Southern Veterans Affairs Medical Center; Gulf War veterans did not improve as much or as quickly as Vietnam veterans or veterans of the recent wars in Iraq and Afghanistan. However, lack of randomization to condition and differences in completion rates obscure interpretation of the results.

Relevant policy issues

Exposure therapy is what is known as a *specialty care*. Specialty care (as opposed to primary care) requires advanced training, supervision, and, typically, advanced degrees for the practitioner. Specialty care is more expensive and harder to access. In addition, proper use of exposure therapy requires training in the theory behind the treatment (Abramowitz (2013)). To address concerns that proper use of PE would be limited by the training hurdle, a study comparing providers reported that community therapists are equally competent at delivering PE as experts who have specialized in PE treatment research (Foa *et al.* (2005)).

Some research indicates that exposure therapy is a relatively cost-effective treatment for PTSD (Issakidis, Sanderson, Corry, Andrews, & Lapsley (2004); Kilmer, Eibner, Ringel, & Pacula (2011)); however, the Issakidis study failed to account for the costs of achieving universal access (e.g., training providers, conducting outreach, etc.). From another perspective, limited

funds may be better redirected to more fundamental needs. There is evidence that lack of material resources (housing, clean water, etc.) may exacerbate PTSD symptoms in the aftermath of a disaster (Kessler *et al.* (2008)), raising the question of whether funding is best directed to treating psychopathology or obtaining such material resources.

Should the benefits of exposure therapy outweigh the costs, widespread implementation may be facilitated by top-down mandate (e.g., Foa, Gillihan, & Bryant (2013); Karlin *et al.* (2010)). However, it has been noted that formal mandate does not guarantee immediate adoption and implementation, given the realities of therapist preference and comfort (Cook, Schnurr, Biyanova, & Coyne (2009)).

Summary and recommendations

Exposure therapy following trauma has a long clinical history, and recent research generally supports the efficacy of various forms of exposure treatments for PTSD. Additional research is needed to assess the real-world effectiveness of exposure-based treatments in diverse trauma-affected populations. Facing painful memories is an intensive process, and exposure treatment must be grounded in evidence-based approaches to facilitate proper use of these powerful techniques.

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